REMARKS

REJECTION UNDER 35 USC 102

Claims 1, 4, 7, 10, 13, 16, 19, 22, and 25 stand rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,431,107 to Byle. The rejection is respectfully traversed.

Specifically, the Office action cites Byle as disclosing an offshore platform comprising a deck, buoyant member, an open support structure positioned between the deck and the buoyant member, a plurality of tendons connected to the buoyant member. As further cited by the Office action, the structure is positioned at least 200 feet below the waterline and the heave of resonance is at least 6 seconds (the Byle structure has a heave resonance greater than 20 seconds).

In response, it is respectfully noted that independent claims 1, 10 and 19 have been amended limited to a heave resonance "in the range of about 6 to about 10 seconds," and accordingly distinguish Blye at least for the heave resonance limitation "in the range of about 6 to about 12 seconds." Support for this amendment can be found in the Specification at 20, lines 1-10).

Dependent claims 4, 7, 13, 16, 22, and 25, dependent upon their respective independent claims 1, 10 and 19, distinguish Blye for at least the same heave resonance limitation "in the range of about 6 to about 12 seconds."

REJECTION UNDER 35 USC 103

Claims 2, 3, 5, 6, 8, 9, 11, 12, 14, 15, 17, 18, 20, 21, 23, 24, 26, and 27 stand rejected under 35 U.S.C. 103 as being unpatentable over Byle. The rejection is respectfully traversed.

In response, claims 2, 3, 5, 6, 8, 9, 11, 12, 14, 15, 17, 18, 20, 21, 23, 24, 26, and 27 are all patentable over Blye for at least the heave resonance limitation "in the range of about 6 to about 10 seconds" as included from their respective independent claims 1, 10 and 19.

As explained in applicants' specification, the frequency of the wave energy is concentrated between 6 and 15 seconds (Specification at 7, lines 1-5). The prior art technique is to utilize a heave resonance that generally less than the 6 to 15 second range (Specification at 7, lines 5-9).

Blye confirms this (see, col. 5, line 60 to col. 6, line 8, emphasis added):

> Therefore, floating structures are generally designed to have heave natural periods significantly above or below the primary wave period. This factor has divided floating structures into two basic categories. One category, comprises tendon-based floating structures, having heave natural periods under the primary wave period, typically near five seconds. The other category, generally comprises non-tendon based, self-stabilizing floating structures, having heave natural periods over the primary wave period, generally greater than twenty seconds. By way of example, a typical floating structure employing a marine tendon system, such as a tension leg

platform, may have a heave natural period of three to five seconds. A floating structure not employing a marine tendon system, such as a spar buoy platform or semi-submersible, generally has a heave natural period above twenty seconds.

The Office action at page 4 correctly states the prior art teaching very clearly, "[i]t is well known to one skilled in the offshore platform art that it is desirable to have a structure whose resonance does not coincide with the resonance of the waves otherwise one would have failure."

However, it is respectfully noted that the Office action at page 4 incorrectly concludes that "it would have been considered obvious . . . to modify Byle by adjusting his structure wherein his structure's resonance was within the range of about 7 to about 9 seconds in order for his structure's resonance to not coincide with the waves." This is an incorrect conclusion because 7 to 9 seconds does coincide with the waves rather than "not" coincide with them. Byle teaches using a heave natural period of at least 20 seconds (see Abstract).

Sebastiani et al. '193

Sebastiani et al. '193 is noted in the Office Action, at page 4, in the "Conclusion" as teaching "a structure having heave resonance within the range of about 7 to about 9 seconds (see col. 3, line 20). However, those intrinsic periods discussed are for "transverse" (or "longitudinal". . . because its symmetric) modes of vibration not for "heave" vibration.[1]

As explained at col. 3, lines 16-18, the Sebastiani structures "dynamic behavior approaches that of a taut cable, or that of a drilling riser tensioned at its top." Or, as respectfully submitted by applicant, like a guitar string. The intrinsic periods of T_1=90s, T_2=20s, T_3=12s, and T_4=8s, are all for a transverse vibration, not heave vibration.

This is even more clearly evident in the next few lines in col. 3, specifically, at lines 31 and 32, refers the discussion to FIG. 2, which clearly shows the various modes of deflection of the flexible cylindrical tubular elements in the transverse direction.

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[1] For a floating structure, displacements in the vertical direction, longitudinal direction, and transverse directions are generally referred to as "heave" (vertical), "surge" (longitudinal) and "sway" (transverse). Many offshore oil structures are symmetric in the surge and sway directions, including the Sebastiani et al. structure. See, Byle '107, at FIG. 1, and col. 3, lines 18-29.

Prompt allowance of all pending claims is respectfully requested.

If it would be of assistance in resolving any outstanding issues in this application, the Examiner is kindly invited to contact applicants' attorney Mark Gilbreth at 713/667-1200.

Respectfully submitted,

Date: **November 11, 2004**

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